

REMARKS

This correspondence is responsive to the Official Action mailed January 10, 2003. Claims 1-15 were examined and remain pending. The Examiner (1) objected to the drawings; (2) rejected claims 1-15 under Section 112, first paragraph; and (3) rejected claims 1-15 under Section 103. In response, the Applicant has (1) enclosed proposed drawing changes for Figs. 1-7; (2) amended claims 1, 6 and 11; and (3) included remarks traversing the prior art rejections.

1. Objection to Drawings

The Examiner objected to Figs. 1-7 as illustrating conventional art and therefore has required that these figures be designated by the legend "Prior Art." Applicant submits herewith proposed drawing changes to that effect in order to comply with the Examiner's requirement. Approval is requested.

2. Section 112 Rejection

The Examiner rejected claims 1-15 under Section 112, first paragraph. The Examiner stated that the claim terms "driving" or "driving circuit" were not adequately described in the specification. (Paper No. 4 at p. 2). However, applicant respectfully traverses the rejection. The specification as filed is replete with usage and examples of these terms which are more than adequate to convey the invention to one with ordinary skill in the art. For example, on page 2, lines 24-29 of the specification, applicant succinctly states the conventional method and the inventive solution, which clearly focuses on the waveform used to drive a pi-cell:

The traditional technique for driving pi-cells has been to use a waveform modulated by a carrier with a frequency of one to two kHz. However, we have found that for pi-cell parts made in some factories, the technique is not a good one. We have therefore created a unique driving approach using a modified carrier waveform, and in addition, what we term a "stutter start," to overcome the artifacts described above.

Applicant goes on to describe its own prior art driving circuits on page 4, line 9 to page 5, line 5. In the Detailed Description of the Invention, applicant describes and illustrates the inventive pi-cell drive waveforms in detail. (See page 7, line 15 to page 12, line 22, and Figs. 8-

13).

Applicant acknowledges that the specification does not illustrate the electronic circuit for generating the specified waveforms. However, applicant submits that it is unnecessary to include such a disclosure – it is the waveform which dictates what the circuit will be, and it is a matter of routine for one with ordinary skill in this art to design such a circuit given the waveform specification. Therefore, applicant submits that its disclosure of specified waveforms fully supports the use of the terms “driving” and “driving circuit” in the claims. The Examiner is respectfully requested to withdraw this ground of rejection.

3. Section 103 Rejections

A. Rejection Based on Lipton

The Examiner rejected claims 1-4, 6-9 and 11-14 under 35 USC § 103(a) as obvious over US Patent No. 4,792,850 to Lipton et al. (“Lipton”). However, applicant respectfully traverses the rejection. It is noted that the first named inventor in the Lipton patent is the same inventor as in the present case.

First, the Lipton patent clearly has some relevance since it discloses a liquid crystal modulator for stereoscopic applications. However, as shown in Fig. 3 and described in column 6, the push-pull modulator disclosed by Lipton includes two large liquid crystal cells 15 and 16 that are independent and arranged in juxtaposition in front of display screen 2. In contrast, the present invention uses a “segmented” Byatt modulator as shown in Fig. 1. By “segmented” we mean that a single modulator includes multiple liquid crystal cells (i.e. segments) which are, in the preferred embodiment, stacked vertically together one on top of the other, as shown in Fig. 1 of the present application, as opposed to a single modulator having a single liquid crystal cell as disclosed in the Lipton patent. For the sake of clarity, and not to define patentability over the cited art, applicant has amended the independent claims to add the term “segmented” as a modifier for the term modulator.

Second, the Lipton patent describes waveforms for driving pi-cells that preferably do not use a carrier. (See Figs. 7-10 and description thereof). Further, even in the embodiment that

does describe use of a carrier (see Fig. 11), the carrier is not an alternating, unipolar carrier as claimed.

The use of a conventional carrier signal to drive a pi-cell is known to eliminate the ion shadow defect, but it is also known that such a signal will leave a visible artifact which is undesirable to the viewer. Recognizing that a significant effect was created when the waveform transitioned through its zero value, applicant created a new driving waveform that has a carrier which does not cross through zero while the pi-cell is active. This waveform is illustrated in Fig. 8 of the application. Thus, the carrier is alternating, as in a conventional driving waveform, but it is also unipolar during a drive cycle, which is quite unlike any prior driving waveform. In independent claims 1 and 11, this distinction is recited as “an alternating, unipolar carrier waveform.” In independent claim 6, this distinction is recited in the two complementary elements: “applying a modulating waveform having a carrier signal of a first polarity to the pi-cell during a first time period, wherein the carrier signal does not change polarity during the first time period” and “applying the waveform having a carrier signal of a second polarity opposite the first polarity to the pi-cell during a second time period, wherein the carrier signal does not change polarity during the second time period.” There is no teaching or suggestion in the Lipton patent of such a waveform. For that reason, independent claims 1, 6 and 11 are patentable over the cited reference. In addition, since the independent claims are patentably distinct over the cited reference, dependent claims 2-4, 7-9 and 12-14 are also patentably distinct.

B. Rejection Based on Combination of Lipton and Edwards

The Examiner rejected claims 5, 10 and 15 under 35 USC § 103(a) as obvious over the combination of Lipton and US Patent No. 6,057,711 (“Edwards”). Applicant respectfully traverses the rejection.

First, claims 5, 10 and 15 are dependent claims. As noted in Section 1A above, the independent claims are patentable over Lipton, and for those reasons, these dependent claims are also patentable.

In addition, applicant submits that the combination of the Edwards patent with the Lipton

patent is inappropriate, and in any event, would not yield the present invention. The Edwards patent is directed to a shutter control system for stereoscopic image viewing glasses which use a liquid crystal lens for each eye. It is not concerned with placing a modulator in front of a display screen to modulate left and right images, but instead, with modulating the left and right images at the eye of the user. There is no teaching or suggestion in either Lipton, or Edwards, or a combination thereof, of a multi-segmented modulator for use in front of a display screen. Further, the problems associated with a multi-segmented modulator are completely absent in both Lipton and Edwards. Therefore, the cited combination is not effective to teach or suggest a multi-segmented modulator being driven by an alternating, unipolar waveform, as claimed.

For these reasons, applicant submits that claims 5, 10 and 15 are patentable over the cited combination.

4. Conclusion

For all the foregoing reasons, applicant submits that the claims are in condition for allowance and requests reconsideration.

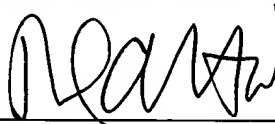
Respectfully submitted,

DERGOSITS & NOAH LLP

Dated: _____

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By: _____



Richard A. Nebb
Reg. No. 33,540